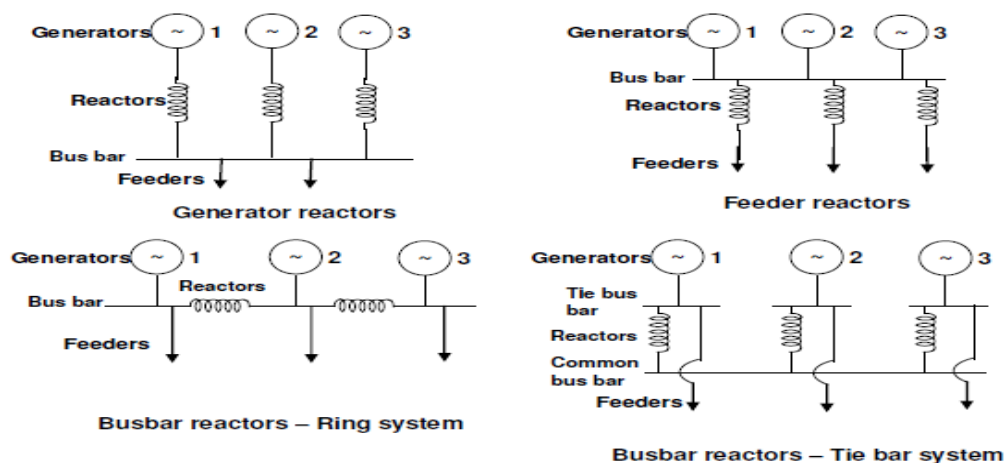


Current Limiting Reactor

The current limiting reactor is an inductive coil having large inductive reactances in comparison to their resistance and is used for limiting short circuit currents during fault conditions. Current-voltage reactors also reduced the voltage disturbances on the rest of the system. It is installed in feeders and ties, in generators leads, and between bus sections, for reducing the magnitude of short circuit currents and the effect of the respective voltage disturbance. Current reactor allows free interchange of power under normal condition, but when the fault occurs the disturbance is restricted by the current reactor to the faulty section. As the resistance of the system is very small as compared to their reactance. Hence, the efficiency of the system is not much affected.



Main Function of Current Limiting Reactor

The main purpose of the current limiting reactor is that its reactance should not decrease when a large short current flows through its windings. When the fault current exceeds about three times rated full-load current then large cross section iron cored reactor is used for limiting the fault current. Because of the large cross-section area, the iron cored reactor becomes very costly and heavy. Therefore, the air cored reactor is usually used to limit the short circuit or fault current.

The iron-cored reactor produces hysteresis and eddy current loss due to which more power is consumed as compared to air cored reactor. Normally, in an air cored reactor, the total losses are of the order of 5% of KVA rating of the reactor.

Functions of Current Limiting Reactor

- Current limiting reactor reduces the flow of short circuit current so as to protect the appliances from mechanical stress and overheating.
- Current reactor reduced the magnitude of voltage disturbances which is caused by short circuits.
- It limits the fault current to flow into the healthy feeders or parts of the system, thereby avoiding the fault from spreading. This increase the chances of continuity of supply.

Drawbacks of current limiting reactor

The main drawbacks of the current limiting reactors are as follows

- When the reactor is installed on the network, the total percentage reactance of the circuit increases.
- It decreases the power factor and thus the regulation becomes poorer.